ABSTRACT

A semiconductor epitaxial structure includes a first semiconductor epitaxial layer and a second semiconductor epitaxial layer having a wider energy band gap than the first semiconductor epitaxial layer. The first semiconductor epitaxial layer includes a first sublayer of one conductive type and a second sublayer of the opposite conductive type. A pn junction is formed between the two sublayers. The semiconductor epitaxial structure may also include a third semiconductor epitaxial layer having a wider energy band gap than the first semiconductor epitaxial layer, the first semiconductor epitaxial layer being sandwiched between the second and third semiconductor epitaxial layers. This semiconductor epitaxial structure can be used in a semiconductor light-emitting device to obtain high emissive efficiency and an operating characteristic that remains linear into the high current injection region.